

Chronic subdural haematoma in the elderly—a North Wales experience

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SUMMARY

Chronic subdural haematoma (CSDH) is predominantly a disease of the elderly. Most of the existing data come from studies done several decades ago. We examined the incidence, risk factors, clinical presentation, management and outcome in elderly patients with CSDH by retrospective study of the period 1996–1999 in the three district hospitals of North Wales.

40 cases of CSDH were identified in patients >65 years, the incidence in this population being 8.2/100 000. Falls (57%) and antithrombotic therapy (33%) were the most frequent risk factors. The most common presenting features were altered mental state (52%) and focal neurological deficit (50%). 24 patients (60%) underwent surgical intervention with 4 deaths (17%). In the non-operated group mortality was 7/16 (44%).

Most of the deaths in this series were due either to CSDH or to the complications of frailty and poor mobility. Surgery itself was generally successful.

INTRODUCTION

Chronic subdural haematoma (CSDH) is predominantly a disease of the elderly and usually follows minor trauma. We looked at cases seen in the three district general hospitals of North Wales. None of these has a neurosurgical unit on site, neurosurgical services being provided by the Walton Centre for Neurology and Neuroscience, Liverpool. The aim was to study the incidence, risk factors, clinical presentation, management and outcome in elderly patients with CSDH.

METHODS

This was a retrospective study covering the 4 years 1997–1999. We identified patients aged above 65 years with a diagnosis of CSDH from their diagnostic coding (International Statistical Classification of Diseases and Related Health Problems). Clinical notes were retrieved and information was collected from inpatient and outpatient notes. We gathered data on risk factors, medication, clinical presentation, initial diagnosis, management, immediate outcome and outcome after 6 months. For patients who had died, the cause of death was obtained from the hospital notes. If they had died after discharge but within 6 months, the cause of death was obtained from the general practitioner.

Table 1 Risk factors

Risk factors	No. (%)
Fall	23 (57)
Without any head trauma	13
With head trauma	10
Antiplatelet drugs	10 (25)
Warfarin	3 (7.5)
Alcohol abuse	3 (7.5)
Epilepsy	3 (7.5)
Direct head trauma	3 (7.5)
None identified	4 (10)

RESULTS

The three hospitals in North Wales catered for a population of 657 738, of whom 121 944 were above the age of 65 (Source: Statistical directorate, National Assembly for Wales). During the 4-year period, 49 patients were identified as having had CSDH from their diagnostic coding. However, examination of their clinical records revealed that only 40 had CSDH. The rest had an intracerebral bleed, an acute subdural haematoma or subarachnoid haemorrhage. The mean age was 79 and 14 (35%) were women. The risk factors are shown in Table 1. In 4 patients no risk factors were identified. Only one patient on warfarin had an international normalized ratio above 3.

The clinical manifestations are shown in Table 2. Some patients had more than one sign/symptom. One patient was

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Table 2 Clinical features

Symptoms/signs	No. (%)
Altered mental state (confusional state—acute or chronic)	21 (52)
Focal neurological deficit	20 (50)
Altered consciousness (drowsy, coma)	14 (35)
Headache	8 (20)
Transient neurological deficit	2 (5)
Collapse	1 (2)

Table 3 Initial diagnosis

Diagnosis	No. (%)
Cerebrovascular accident	19 (48)
CSDH	8 (20)
Acute infection	8 (20)
Worsening dementia	2 (5)
Others	3 (7)

admitted after a collapse and CSDH was an incidental finding.

We considered the initial diagnosis as the one made after a senior review (either a registrar or a consultant), and not the admitting diagnosis. This is because in many patients a history was not available at the time of admission and proper assessment was not possible because of an acute confusional state. In only 8 patients was CSDH suspected initially, before the investigations. The suspected diagnoses are shown in Table 3.

On CT scanning 38 patients had unilateral haematoma and 2 had bilateral haematoma. 10 patients had a mass effect with midline shift. 24 patients underwent neurosurgical intervention, of whom 7 had a midline shift and one had bilateral haematoma. 3 patients were too ill to undergo surgery, of whom one died soon after CT scanning. All 3 of them had mass effect with midline shift. In 13 patients the haematoma was thought to be small and not contributing to the patient's clinical condition; in these, after discussion with neurosurgeons, conservative management was decided upon.

11 patients died during the index admission, all of them within 4 weeks. There were 4 deaths in the operated group (17%) and 7 (44%) in the non-operated group. In the operated group 1 patient did not improve after surgery and the cause of death was thought to be CSDH; 2 died from pulmonary embolism and 1 died from lower respiratory tract infection. In the non-operated group 3 died as a direct result of CSDH (patients who were too ill to undergo surgery), 3 from lower respiratory tract infection and 1

from ruptured abdominal aortic aneurysm. At 6-month-follow-up 2 more patients had died of lower respiratory tract infection, 1 from each group: 1 patient could not be traced. Table 4 summarizes the management and outcomes.

DISCUSSION

The incidence of CSDH for people above the age of 65 in our study was 8.2/100 000 per year, whereas in 1975 Fogelholm and Waltimo¹ reported an incidence of only 7.35/100 000 in a population aged 70–74. The explanation probably lies in easier investigations, increasing use of antithrombotics and the inclusion of older people in our study. With the continuing growth in numbers of very old people, we can expect the incidence of CSDH to increase.

A fall is the most frequently encountered (57%) risk factor. CSDH can develop after a fall even if there has been no head trauma. In a recent series fall was the most common presentation². Antithrombotic therapy is the second most common risk factor and one-third of our patients were taking either aspirin or warfarin. It is noteworthy that in 10% of the patients no risk factors were identified.

Only in one-fifth of patients was CSDH suspected on admission. In these cases altered mental state and focal neurological deficit were the most common features. The condition is often misdiagnosed as cerebrovascular accident when there is no clear history of head trauma. Even though only 2 patients had symptoms suggestive of transient ischaemic attack this presentation is well recognized³. Headache in this age group is less commonly reported than in younger patients with CSDH. CSDH is best managed by surgical drainage, and the key factor in elderly patients is

Table 4 Management and outcome

Categories	No.
Total	40
M	26
F	14
Mean age (range)	79 (65–84)
Operated	24 (60%)
Conservative management	13 (33%)
Too ill to undergo surgery	3 (7%)
Death during index admission (within 4 weeks)	11 (28%)
Direct	4
LRTI	4
Pulmonary embolism	2
Ruptured aortic aneurysm	1
Death at 6 m	13 (33%)
Lost to follow-up	1

LRTI=lower respiratory tract infection

their fitness to undergo neurosurgery. 60% of our patients had surgical evacuation compared with only 37% from the recent series reported by Jones and Kafetz². Only 3 were judged unfit for surgery and they eventually died. In the remaining 13 patients, the haematoma was considered too small to justify surgery.

Reported morbidity and mortality from CSDH varies widely. In our study, the immediate mortality (within 4 weeks) was 17% in the operated group and 44% in the non-operated group. There were no deaths from complications of surgery; patients died either from the direct effects of CSDH or from complications due to compromised mobility (except the patient who died of ruptured aortic aneurysm). So a key factor in outcome, as so often in the elderly, is poor mobility and frailty. The overall index mortality of 28% was higher than the 15.6% reported by Rozzelle *et al.*⁴ in their larger series (157 patients). Our 6-month mortality was 33%, and a recent study has shown a similar figure at 31%². The outcome is better in patients who undergo neurosurgical intervention, among whom the morbidity and mortality have been reported at around 16% and 6.5%, respectively⁵. The major limiting factors of our study are that it is retrospective and we might have missed some cases through incorrect coding. However, our data do represent an unselected group from the general medical wards.

Even though neurological state at the time of diagnosis has been reported as the most important prognostic factor⁴, it was not a significant factor in our study. The influence of age on the outcome is controversial and several studies have shown no relationship with age⁶. In a multivariate model,

increasing age was significantly associated with mortality, but its contribution was small compared with level of consciousness⁴.

Recently, Reinges and colleagues have described a bedside technique for treatment of CSDH⁷. They perform twist-drill craniostomy under local anaesthesia and drain fluid through a cannula by gravity. Good results have been obtained with low complication rates. So this minimally invasive procedure might now be considered for severely ill patients.

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